ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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Scrap Metal Management

Scrap Metal in Solid Waste

Weight and Volume -- Scrap metal is a very heterogeneous waste stream, which includes articles as diverse as discarded appliances ("white goods"), toys, tire rims, storm doors and windows, lawn furniture, plumbing and electrical scrap, car parts, and many others. Scrap metal includes essentially all metals in solid waste, other than steel and aluminum cans.

According to U.S. Environmental Protection Agency (EPA) estimates, about 15.8 million tons of scrap metal were discarded in the U.S. in 1995-- or about 7.7 percent of all municipal solid waste (MSW). Over 80 percent of discarded scrap consists of ferrous metals (iron and steel); lead (from lead-acid batteries) and aluminum constitutes most of the rest. Industries such as foundries, equipment and appliance manufacturers, and metal working shops generate large quantities of scrap metal, but these are nearly always stored on-site for sale to metal processors, and do not become part of MSW. Over 90 percent of the scrap metal that is defined as MSW is derived from residential sources. Although shredded or baled scrap metal is very heavy for its volume, most discarded scrap is in bulky products that resist compression. For this reason, EPA estimates that scrap metal contributes about 9 percent more to MSW volume, than it does to MSW weight.

Disposal -- Scrap metal itself is relatively inert, and degrades very slowly (if at all) in landfills. Ferrous metals will eventually rust, and most other metals will also chemically degrade in the environment. Metals are noncombustible and pass through waste-to-energy incinerators as a constituent of bottom ash. Some waste-to-energy facilities use magnets to separate ferrous metals from incoming wastes or from ash prior to disposal. However, New Hampshire's two waste-to-energy incinerators do not.

Scrap Metal Recycling

Collection, Processing, and Storage -- Scrap metal is the "oldest" of all recyclables. Scrap has been collected by municipalities, scavengers, and junk dealers for many decades, and has been used in steelmaking for as long as steel has been produced. Nationwide, because of the large volumes of steel recovered from dismantled buildings, old automobiles, and other industrial sources in addition to MSW, more steel is recycled each year than all other recycled materials combined, and about 68 percent of all "new" steel produced is actually recycled metal. Currently, over 220 of New Hampshire's 234 municipalities (including at least 96 percent of the state's population) recycle scrap metal.

Most municipalities collect scrap metal either in large piles or in large containers for direct transport to a scrap dealer. Very few municipalities bale or otherwise process scrap metal on-site

although some dealers offer on-site baling services (using transportable balers). Scrap metal can be stored outside for long periods with no significant deterioration or loss of value, and many municipalities stockpile scrap metal for a year or more before moving it to a processor.

The per-ton value of scrap metal is highest if sorted by type. For example, both ferrous metal and aluminum can be separated into higher-and lower-value fractions, and other nonferrous metals (e.g., brass, copper) are quite valuable if separated from mixed scrap. Sorting must be done by hand, however, and few municipalities are able to make the required investment in time and manpower. Most municipal scrap metal is sold to dealers as an unsorted waste. Many dealers, who process large volumes at dedicated facilities, sort incoming metals to realize the highest market prices.

Although scrap metal itself requires little or no processing, two components of household appliances are a potential environmental concern, and require special treatment. Chlorofluorocarbons (CFCs), which have been associated with stratospheric ozone depletion, are used as a coolant in most refrigerators and room air conditioners. Under federal law, CFCs must be removed from these appliances before they are disposed. Many scrap dealers have equipped themselves to remove CFCs from appliances, and now offer this services to municipalities (generally removing CFCs on-site at the municipal landfill or transfer station). In addition, electric transformers in some older appliances (air conditioners, dryers, fluorescent lights, and others) contain polychlorinated biphenyls (PCBs), which are carcinogens. These transformers must be removed before the appliances are processed for sale in scrap metal markets. Because transformers may be hard to reach, and transformers that contain PCBs can be difficult to identify, it can be problematical both for municipalities and metal dealers who process old appliances to assure that all PCB-containing transformers are removed.

Manufacturing -- Scrap metal has been used in metal manufacturing for as long as metalworking technologies have existed. For example, scrap steel can be melted directly in steel furnaces; basic-oxygen furnaces (the majority of U.S. steelmaking capacity) can use up to 20-30% scrap steel, and electric arc furnaces (a newer steelmaking technology) can operate with 100% scrap. Foundries for iron and steel, aluminum, brass, and other metals also routinely use scrap as a raw material. There are few limitations on the range of metal products in which recycled scrap can be used as an input.

Markets for Scrap Metal -- Most New Hampshire municipalities market their scrap metal to an established network of dealers in this and adjacent states. The dealers consolidate shipments from many municipalities (plus commercial/industrial sources) into loads that they resell in regional markets. Dealers generally sort scrap by material and grade to realize the highest prices they can, and stockpile loads to sell them when prices peak. Some municipalities also sort and stockpile materials to maximize their market value, but the resources and market information required to do this are beyond the reach of most New Hampshire communities.

Markets and prices for ferrous and other scrap metals are relatively stable. Prices are subject to fluctuations in national and international commodity markets -- for example, Russian mills (which once produced almost entirely for domestic consumption) have recently sold large volumes of aluminum in international markets, driving down prices worldwide.